COMMONWEALTH of VIRGINIA

Department of Health

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September 2, 1996

MEMORANDUM

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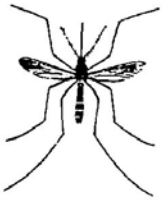
SUBJECT: LaCrosse Encephalitis

As you can see by the attached information, there is reason to believe that more LaCrosse encephalitis may be occurring in Virginia than we are aware of. I hope you will be able to share the medical information on LaCrosse encephalitis with the physicians in your District to help increase awareness and reporting. You may want to prepare a cover memo that points out the disproportionate number of cases in West Virginia and the presence of the vector mosquitoes in Virginia.

The *Facts About California Encephalitis* flyer is intended for the public. It can be supplied to physicians for them to make available to their patients and you can distribute it to the public through your usual methods.

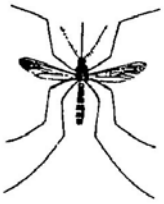
Please contact me if you have any questions about this material.

FACTS ABOUT CALIFORNIA ENCEPHALITIS



What is California encephalitis?

Despite its name, California encephalitis is not confined to California. From summer to early fall several cases of this serious brain infection occur in Virginia and West Virginia. The most common type of California encephalitis is called LaCrosse encephalitis. California encephalitis is caused by a virus spread by a specific type of mosquito that lives in wooded areas. People can be infected *only when* a mosquito carrying the virus bites them.



What are the symptoms of California encephalitis?

Fortunately, most people bitten by an infected mosquito either do not get sick or have only a slight fever and/or headache. Occasionally, however, people develop a more serious infection marked by sudden onset of high fever, headache, stiff neck, extreme tiredness and confusion. This is called encephalitis. Convulsions and coma can also occur. Children under the age of 15 years are most commonly affected. Most fully recover, but a small number develop long-lasting nervous system problems. Occasionally, children die of this disease.

How can I prevent my child from getting California encephalitis?

There are currently no medicines to treat the illness. Therefore, the best approach is to prevent infection. This can be done by getting rid of mosquitos that carry the virus and by protecting your children from mosquito bites.

These mosquitos breed in stagnant water that collects in tree holes, stumps, empty containers or toys outside the house. *To help decrease the number of mosquitos, remove anything that can collect rainwater, especially old tires or trash, from yards or play areas.*

Mosquitos that carry the California encephalitis virus can bite any time of the day. *Because the mosquitos like shady, wooded areas, children are less likely to be bitten if they play in more open, sunny spots.* When it is not possible to avoid more risky environments (such as when camping), wearing lightweight protective clothing (long pants and shirt sleeves) and using insect repellants on exposed skin and clothing can decrease your child's chances of being bitten by an infected mosquito. A repellant containing less than 10% DEET is recommended for children under 5 years of age. Concentrations up to 30% can be used on older children and adults.

Preventing Mosquito Bites is our Best Protection!

For more information about preventing California encephalitis, call your local health department.

VDH VIRGINIA DEPARTMENT OF HEALTH

LACROSSE ENCEPHALITIS

General Information

- LaCrosse virus is the most medically significant of the California viruses in the United States.

- In recent years, California encephalitis (CE) has become the most common cause of mosquito-borne illness in the United States.

- Approximately 100 to 200 symptomatic central nervous system infections (CNS) caused by LaCrosse virus occur in the United States per year, mostly in children younger than 15 years of age.

Symptoms

- Most infections are asymptomatic.

- Symptoms usually occur 3 to 7 days after the bite of an infective mosquito and range from mild febrile illness to encephalitis or meningoencephalitis.

- Fever, headache, nausa and vomiting are present in most patients. **The predominance of vomiting as a presenting symptom may lead to a misdiagnosis of gastrointestinal illness.**

- A stiff neck may be the major clinical finding in mild CNS infection. Lethargy, aphasia, incoordination, and focal motor abnormalities, even paralysis, may be present. Convulsions occur in about one-half of the symptomatic cases.

- Mortality in acute CNS disease is about 1%.

- Sequelae include: abnormal EEGs 1 to 5 years later; persistent emotional lability in 10% of cases; and chronic epilepsy in 6 to 10% of all diagnosed cases.

Laboratory Findings

- Spinal fluid generally shows a modest pleocytosis that occasionally is largely granulocytic and exhibits normal or slightly increased protein concentration.

- Peripheral leukocytosis in excess of 15,000 WBCs/mm^3 is not uncommon.

Diagnosis

- The diagnosis of California encephalitis is serologic because the virus is not present in the blood or secretions during the CNS clinical phase of disease.

- Diagnosis can be confirmed by demonstration of a fourfold or greater rise in serum antibody titer between acute and convalescent specimens. Some laboratories offer EIA or ELISA tests for IgM antibody detection. The Virginia State Laboratory performs an IFA test to detect antibodies to Eastern Equine Encephalitis, St. Louis Encephalitis, Western Equine Encephalitis, and California Encephalitis group viruses in a single sample or to identify sero-conversion in acute and convalescent specimens. Serum samples should be sent at refrigerator temperature to:

Division of Consolidated Laboratory Services
Immunology/Viral Isolation Group
1 North 14th Street
Richmond, VA 23219
804-786-5142

(Continued)

Do We Have LaCrosse Encephalitis in Virginia?

- From 1975 through 1995, only 3 CE cases were identified in Virginia. During this same time period, 410 CE cases were reported in Ohio, 46 cases in North Carolina, and 145 cases in West Virginia.

- In the years 1992 through 1994, 3 counties in West Virginia that border Virginia (McDowell, Mercer, Greenbrier) reported cases.

- Through August 17, 1996, 13 cases of LaCrosse encephalitis were reported in West Virginia; the highest incidence was in south central West Virginia. To date in 1996, no cases have been reported in Virginia.

- In 1995, the Centers for Disease Control and Prevention conducted a retrospective study to identify unreported cases of LaCrosse encephalitis in children hospitalized in southwest Virginia during the previous 6 years. Records on 5 children with compatible symptoms were identified and examined. Serum from 2 of these children tested negative for antibodies to CE virus; the remaining 3 children were not tested.

- The most important vector for LaCrosse virus is the treehole mosquito, *Aedes triseriatus.* This is the most common species of mosquito in Virginia. A more recently discovered mosquito that also carries the virus is *A. albopictus*. The presence of this mosquito in Virginia has been confirmed.

Are so few cases of LaCrosse encephalitis reported in Virginia because there really are not many cases, or do the nonspecific symptoms of the disease and a low level of suspicion by medical care providers result in less frequent testing for CE viruses?

Recognition and reporting of CE cases is important for targeting preventive efforts to avoid acute disease and the serious sequelae that can occur from LaCrosse infection. Please help by considering the diagnosis (especially in children), ordering appropriate tests, and reporting suspicious cases to your local health department.

Prepared by the Office of Epidemiology, Virginia Department of Health, August, 1996